

2N4957 (SILICON)

2N4958

2N4959

PNP silicon annular small-signal RF transistor designed for high-gain, low-noise amplifier, oscillator, and mixer applications.



Active elements isolated from case

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	30	Vdc
Collector-Base Voltage	V_{CB}	30	Vdc
Emitter-Base Voltage	V_{EB}	3.0	Vdc
Collector Current - Continuous	I_C	30	mA dc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	200 1.14	mWatt mW/ $^\circ\text{C}$
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage ($I_C = 1.0 \text{ mA dc}, I_B = 0$)	BV_{CEO}	30	—	—	Vdc
Collector-Base Breakdown Voltage ($I_C = 100 \mu\text{A dc}, I_E = 0$)	BV_{CBO}	30	—	—	Vdc
Emitter-Base Breakdown Voltage ($I_E = 100 \mu\text{A dc}, I_C = 0$)	BV_{EBO}	3.0	—	—	Vdc
Collector Cutoff Current ($V_{CB} = 20 \text{ Vdc}, I_E = 0$) ($V_{CB} = 20 \text{ Vdc}, 0, T_A = 150^\circ\text{C}$)	I_{CBO}	— —	— —	0.1 100	$\mu\text{A dc}$

ON CHARACTERISTICS

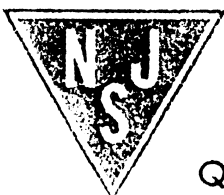
DC Current Gain ($I_C = 2.0 \text{ mA dc}, V_{CE} = 10 \text{ Vdc}$)	h_{FE}	20	40	—	—
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DYNAMIC CHARACTERISTICS

Current-Gain - Bandwidth Product ($I_E = 2.0 \text{ mA dc}, V_{CE} = 10 \text{ Vdc}, f = 100 \text{ MHz}$) 2N4957 2N4958, 2N4959	f_T	1200 1000	1600 1500	— —	MHz
Collector-Base Capacitance ($V_{CB} = 10 \text{ Vdc}, I_E = 0, f = 100 \text{ kHz}$)	C_{cb}	—	0.4	0.8	pF
Collector-Base Time Constant ($I_E = 2.0 \text{ mA dc}, V_{CB} = 10 \text{ Vdc}, f = 63.6 \text{ MHz}$)	$r_b C_C$	—	—	3.0	ps
Noise Figure ($I_C = 2.0 \text{ mA dc}, V_{CE} = 10 \text{ Vdc}, f = 450 \text{ MHz}$) Fig. 1 ($I_C = 2.0 \text{ mA dc}, V_{CE} = 10 \text{ Vdc}, R_G = 50 \text{ ohms}, f = 1.0 \text{ GHz}$) 2N4957 2N4958 2N4959 2N4957	NF	— — — —	2.6 2.9 3.2 5.0	3.0 3.3 3.8 —	dB

FUNCTIONAL TESTS

Common-Emitter Amplifier Power Gain ($V_{CE} = 10 \text{ Vdc}, I_C = 2.0 \text{ mA dc}, f = 450 \text{ MHz}$) 2N4957 2N4958 2N4959 ($V_{CE} = 10 \text{ Vdc}, I_C = 2.0 \text{ mA dc}, R_G = 50 \text{ ohms}, f = 1.0 \text{ GHz}$) 2N4957	G_{pe}	17 16 15 —	— — — 13	— — — —	dB
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Quality Semi-Conductors